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INFLUENZA

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GHC

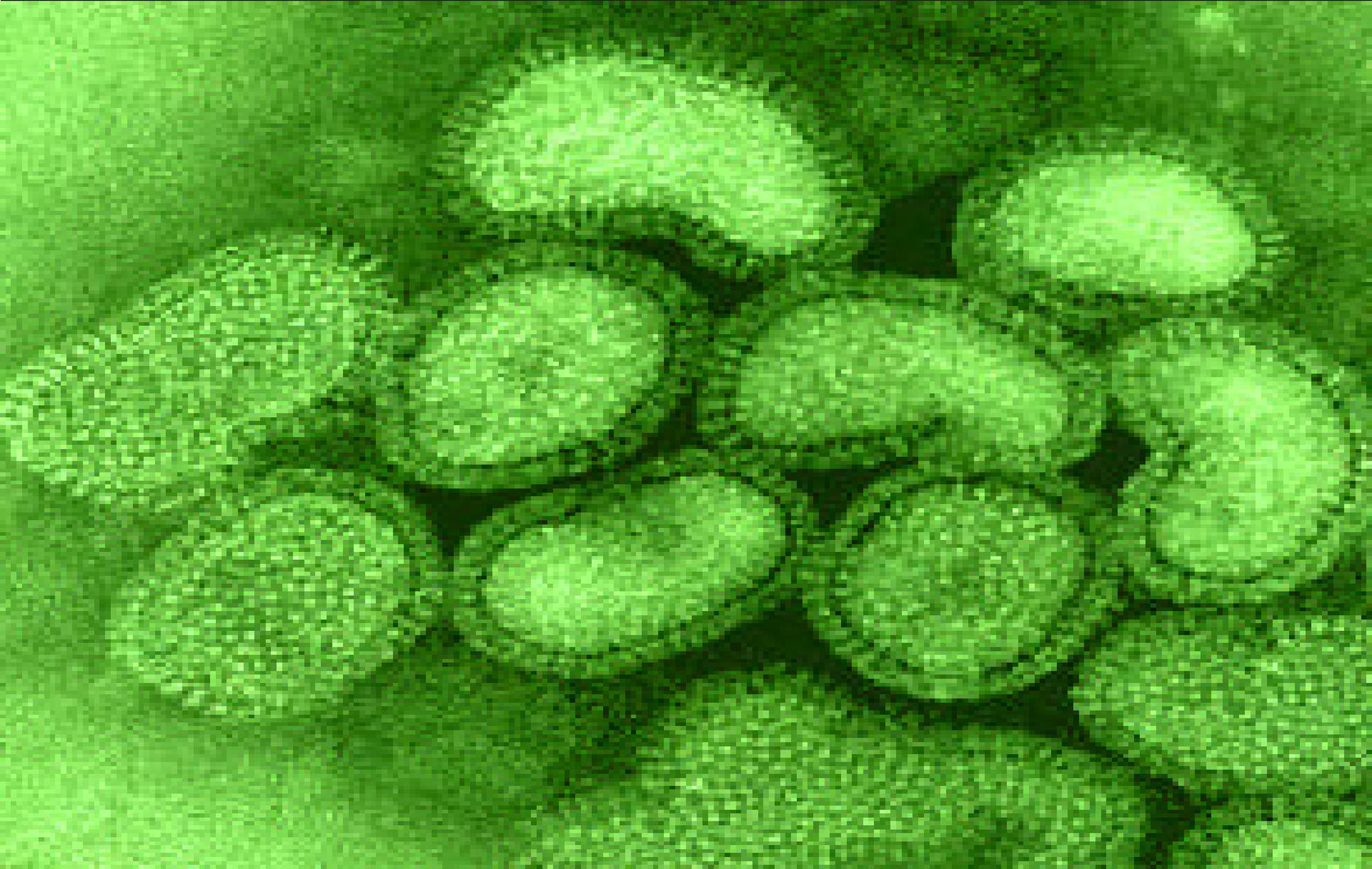


- **The virus**
- **Current situation**
- **USAID involvement**



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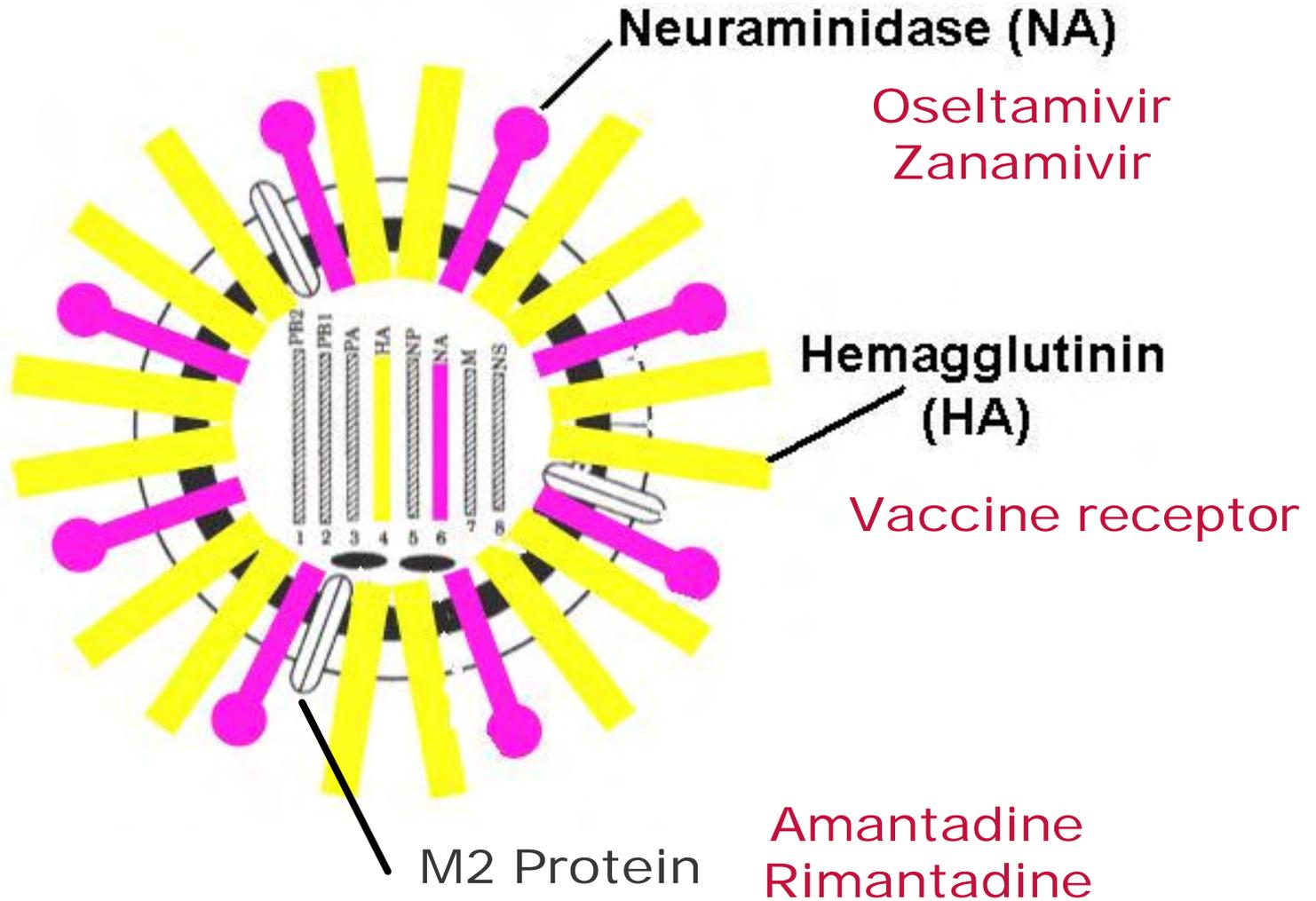
The Influenza Virus





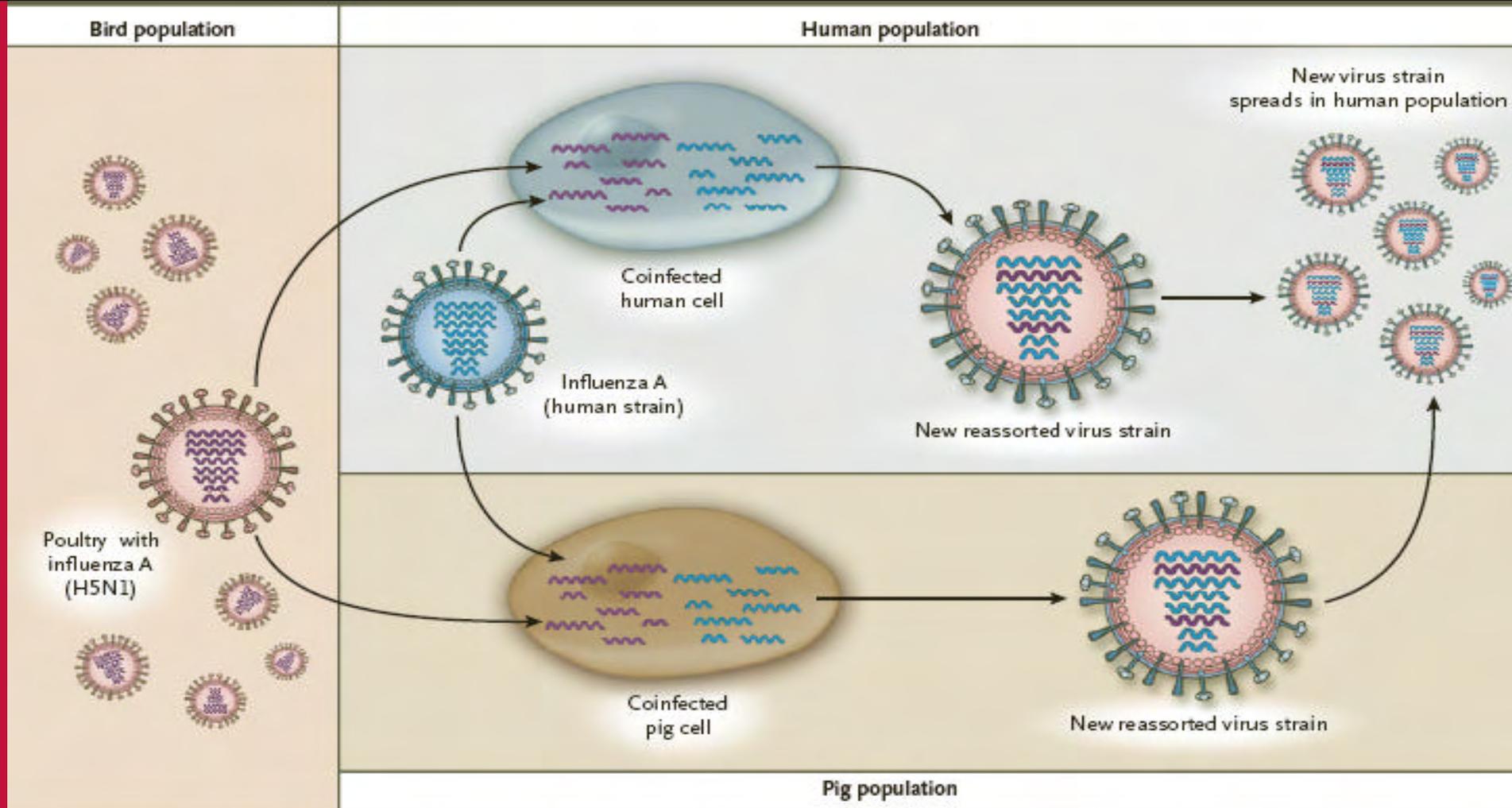
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- Single strand DNA (RNA)
- Segmented genome (8 genes)
- No proof-reading mechanism
- Prone to mistakes during replication – “sloppy virus”



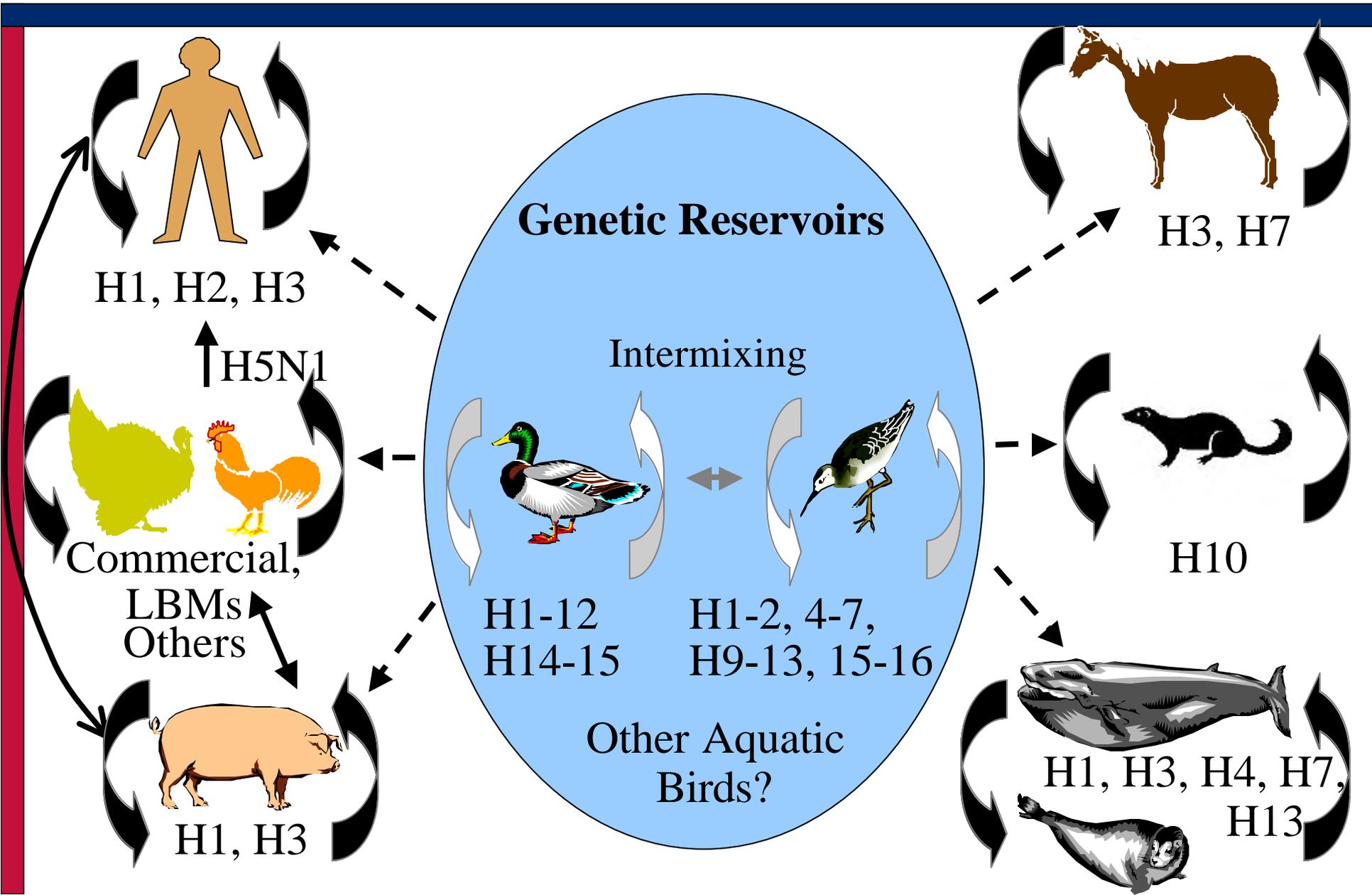
- **Antigenic Drift:** gradual process of adaptive mutation for survival; survival tactic that keeps populations susceptible
- **Antigenic shift (re-assortment):** swapping gene segments with other viruses during co-infection; this is a rapid way of developing pandemic capabilities

Re-assortment



Generation of a Potentially Pandemic Strain of Influenza through Reassortment.

Reassortment of genes between avian and human strains of influenza, which is facilitated by the division of the influenza A genome into eight segments, can occur during coinfection with both strains. Such coinfection may occur in pigs, which would support the growth of both avian and human viruses, or it may occur in humans.



The Current Outbreak

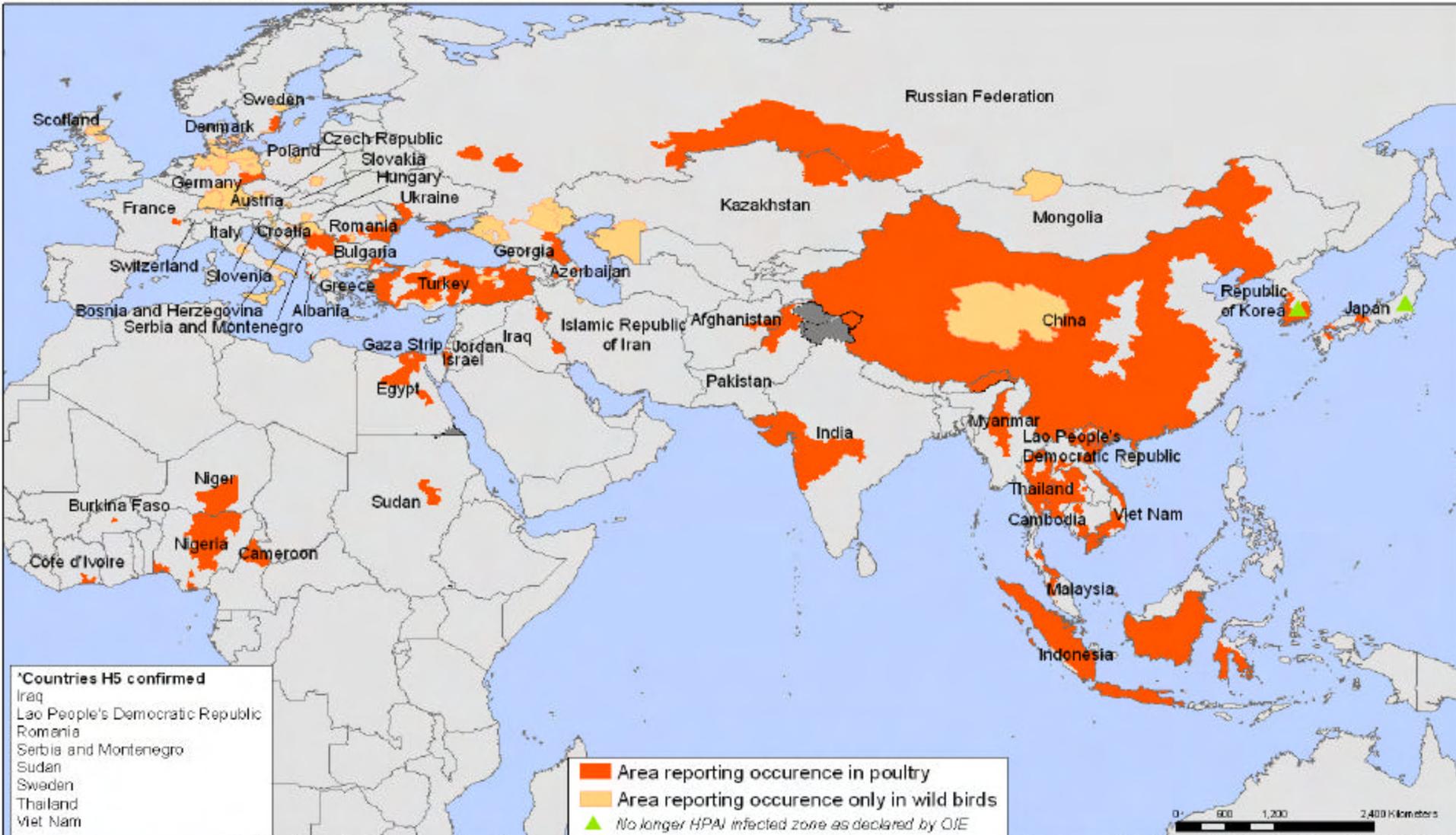


Key events

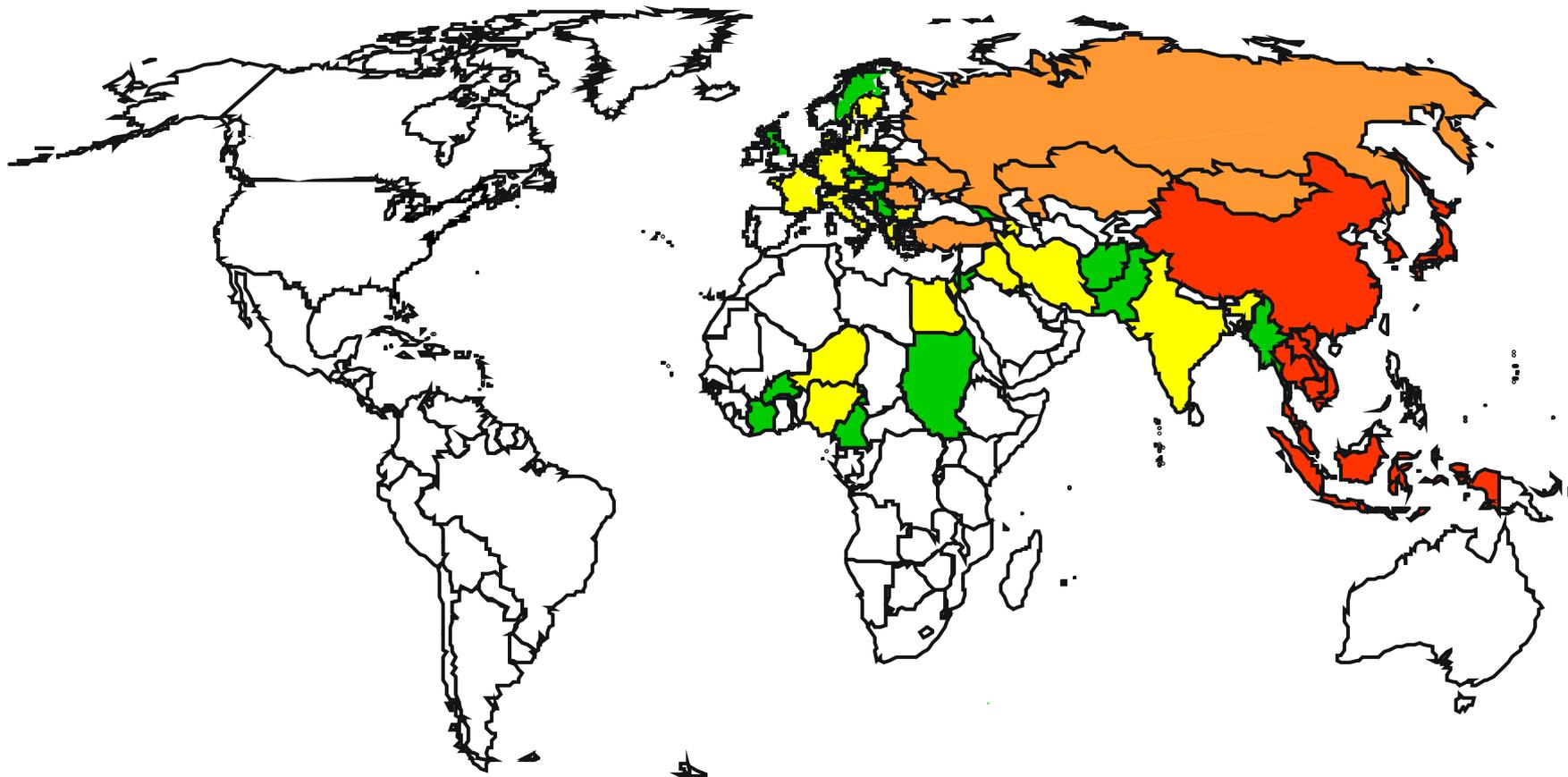
- 1997 Hong Kong: poultry and humans
- 2003-4: widespread outbreaks in Hong Kong, Thailand, Korea, Vietnam, Japan, Cambodia, Malaysia and Laos
- 2003-4: human infections in Vietnam and Thailand
- 2004: possible human-to-human infection in Thailand
- 2005-6: outbreak spreads to Europe with a major outbreak in Turkey
- 2006: outbreak spreads to Africa
- 2006: a total of 51 countries involved
- 1997-2006: over 200 million birds killed

Areas reporting confirmed occurrence of H5N1* avian influenza in poultry and wild birds since 2003

Status as of 1 May 2006



H5N1 Avian Influenza (Dec 2003 – Apr 2006)



 Dec 03-Jun 05

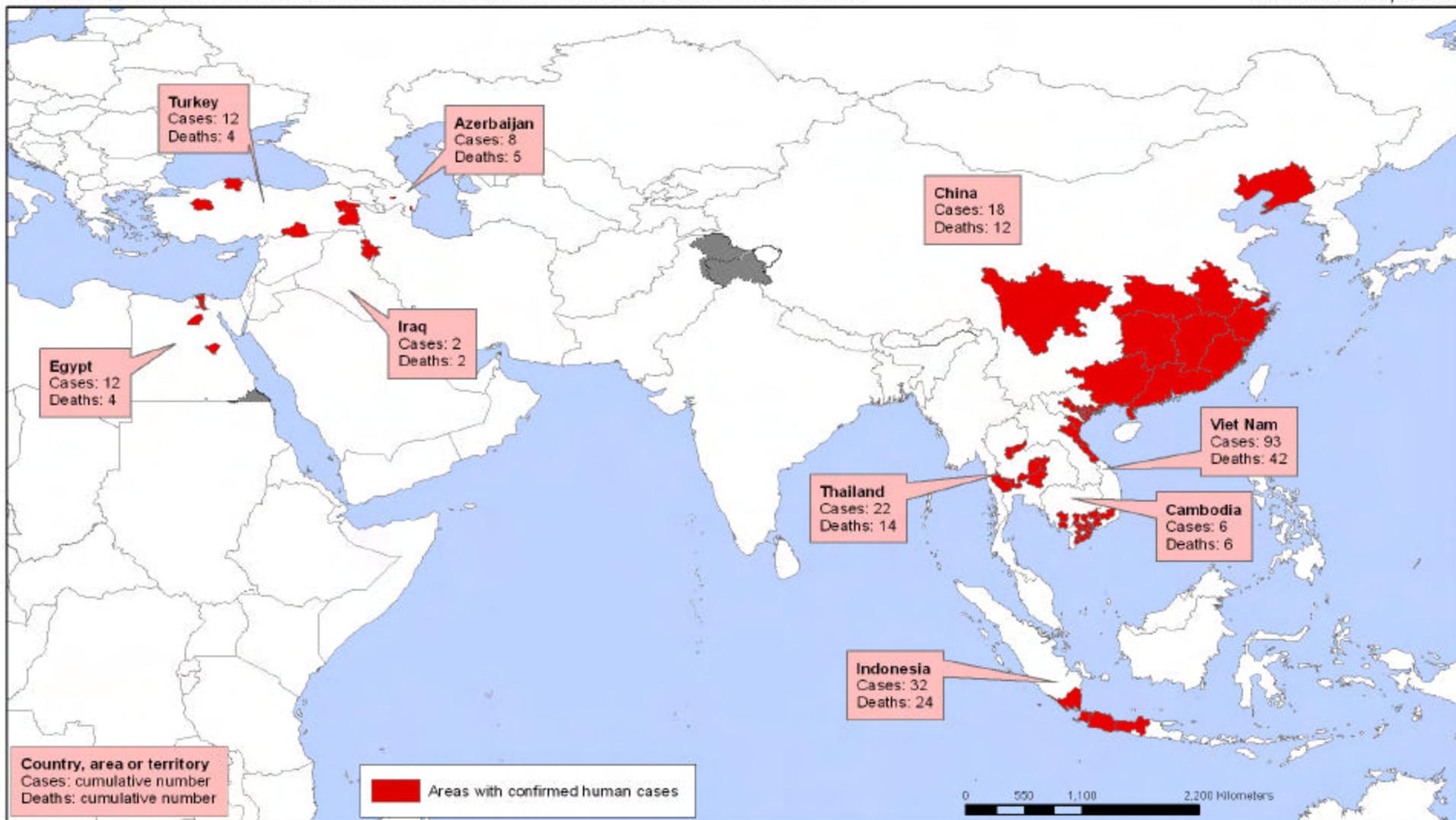
 Jul-Dec 05

 Jan-Feb 06

 Mar-Apr 06

Affected areas with confirmed human cases of H5N1 avian influenza since 2003

Status as of 27 April 2006



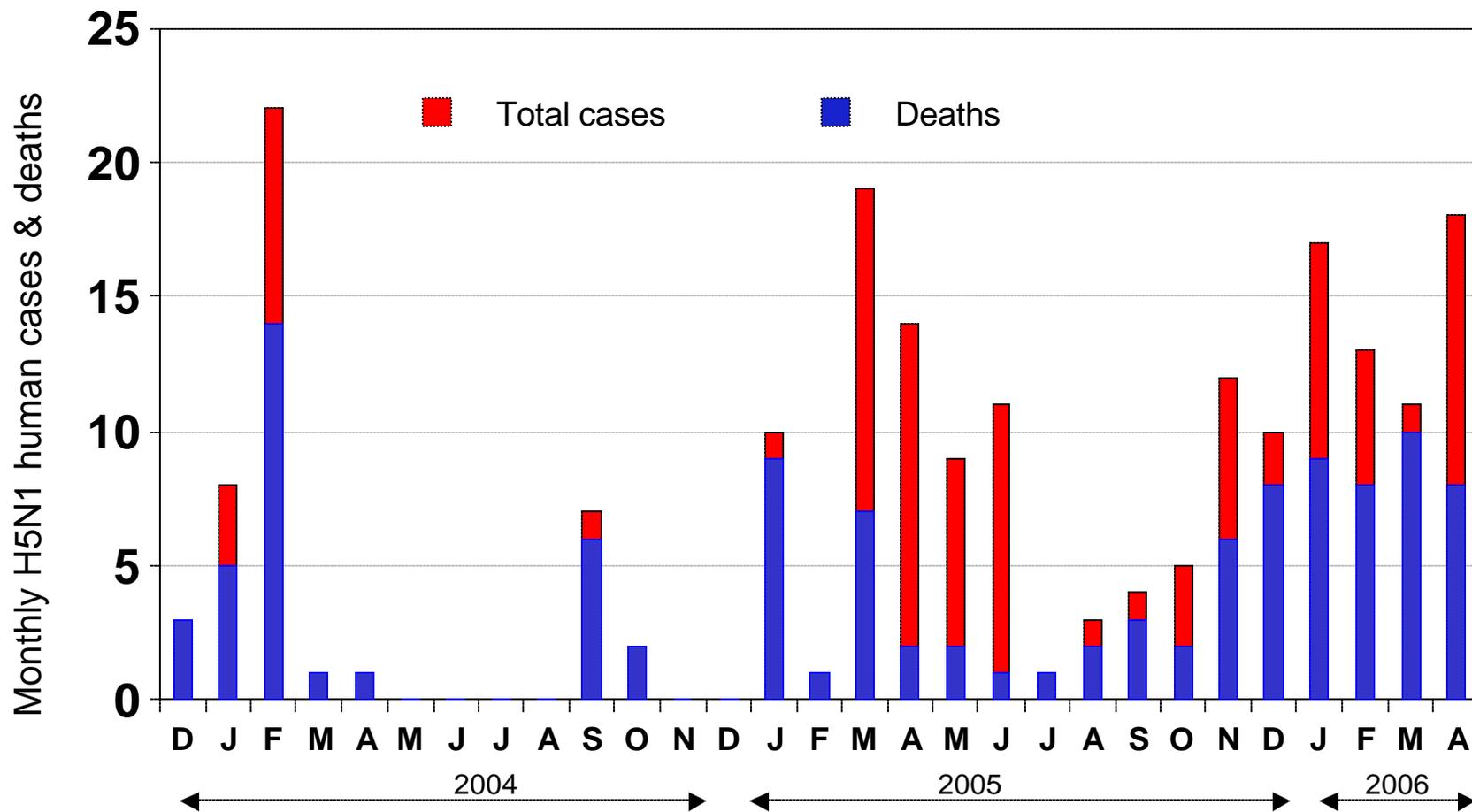


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Cumulative WHO -confirmed H5N1 cases in humans

	Cases	Deaths
Azerbaijan	8	5
Cambodia	6	6
China	18	12
Egypt	13	5
Indonesia	33	25
Iraq	2	2
Thailand	22	14
Turkey	12	4
Viet Nam	93	42
Total:	207	115

Human H5N1 Cases and Deaths*



* Laboratory-confirmed H5N1 cases and deaths reported to WHO as of 21 April, 2006

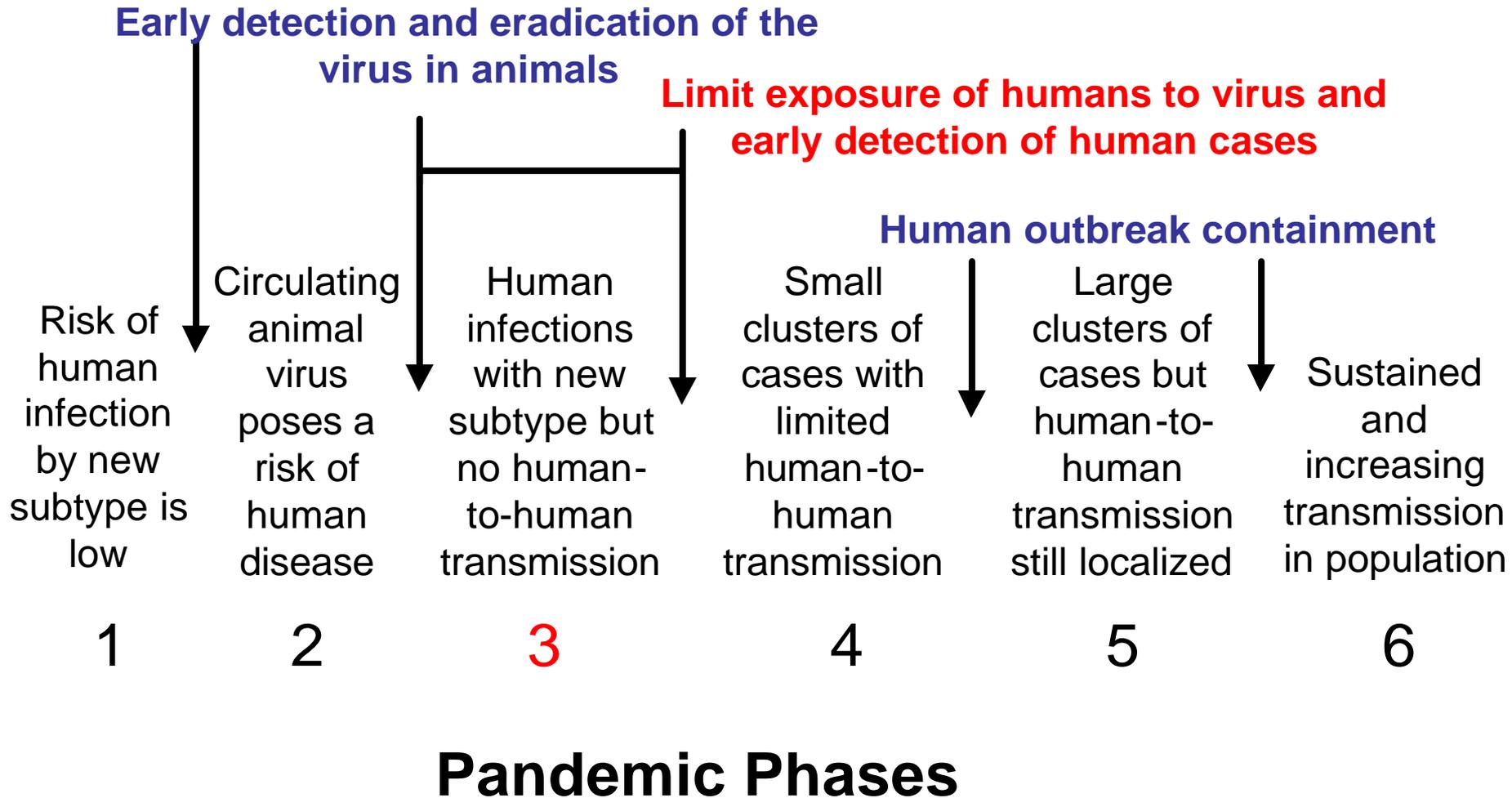


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- **DoD**
 - Lab capacity strengthening; commodities and training for U.S. military
- **HHS/CDC**
 - Surveillance and diagnostics, pandemic planning, research, communications, treatment, training
- **USDA**
 - Technical assistance for animal surveillance and diagnostics, containment & prevention measures, planning, laboratory support
- **State**
 - Public diplomacy, diplomatic engagement, delivery of donated supplies, overall coordination
- **USAID**
 - Surveillance and rapid response, private sector involvement, pandemic planning, behavior change communications, coordination between human and animal health sectors

Interventions to prevent a pandemic



- **Animal & human populations in close proximity**
 - farm animals and pets in/under/next to houses
 - live animal markets (many species from many countries)
- **Poor agricultural practices**
 - inadequate infection control on farms
 - poultry excrement used in agriculture (e.g. fed to pigs)
- **Poor food hygiene**
 - food preparation practices
 - consumption of raw/undercooked meat
- **Frequent travel/trade involving humans and birds**
 - movement of people/animals among farms
 - legal and illegal animal trade
 - wild bird migration

- Preparedness planning at national and sub-national levels
- Improved animal and human surveillance including early warning systems and laboratory support
- Rapid response to animal and human outbreaks including culling, vaccination, biosecurity, improved case management, etc.
- Strengthen behavior change and communications
- Commodity stockpiles
- Coordination across the USG and with other donors

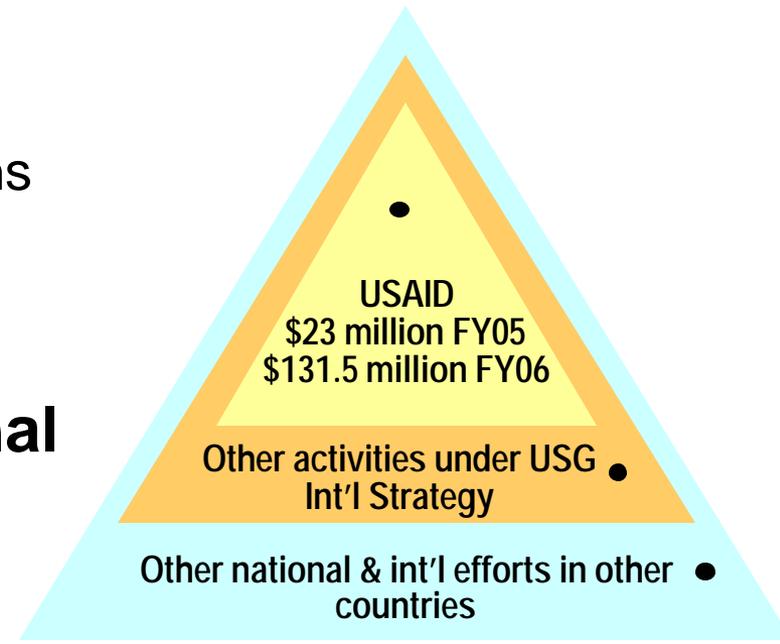


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Four priority actions

- Surveillance/sample collection/laboratory diagnosis
- Rapid response action: outbreak investigation, containment, biosecurity
- Communications
- Essential commodities

- **USAID: FY05 \$23 million**
 - \$16.3 million in emergency funds focused on immediate priorities in high-risk countries in SE Asia, Africa and Eastern Europe & Eurasia
 - \$6.9 million reprogrammed by missions to support emergency response
- **FY06: \$255 million in additional emergency funds for international activities**
 - Implemented by USAID, CDC, HHS, USDA, DoD, and State
 - Includes \$131.5 to USAID, of which \$56.3 will be used to stockpile commodities for emergency outbreak response.





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Thank You